

SEQUENCE LISTING

<110> Watkins, Jeffrey D.
Huse, William D.
Tang, Ying

<120> Humanized Collagen Antibodies and
Related Methods

<130> P-IX 4976

<160> 358

<170> FastSEQ for Windows Version 4.0

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<211> 339

<212> DNA

<213> Mus musculus

<220>

<221> CDS

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gag aag gtc act atg agc tgc aag tcc agt cag agt ctg tta aac agt	96
Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser	
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gga aat caa aag aac tac ttg gcc tgg tac cag cag aaa cca ggg cag	144
Gly Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln	
35 40 45	

cct cct aaa ctg ttg atc tat ggg gca tcc act agg gaa tct ggg gtc	192
Pro Pro Lys Leu Leu Ile Tyr Gly Ala Ser Thr Arg Glu Ser Gly Val	
50 55 60	

cct gat cgc ttc aca ggc agt gga tct gga acc gat ttc act ctt atc	240
Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Ile	
65 70 75 80	

atc agc agt gtg cag gct gaa gac ctg gca gtt tat tac tgt cag aat	288
Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Asn	
85 90 95	

gat cat agt tat ccg tac acg ttc gga ggg ggg acc aag ctg gaa ata	336
Asp His Ser Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile	
100 105 110	

aaa	339
Lys	

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 <212> PRT
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 Gly Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45
 Pro Pro Lys Leu Leu Ile Tyr Gly Ala Ser Thr Arg Glu Ser Gly Val
 50 55 60
 Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Ile
 65 70 75 80
 Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Asn
 85 90 95
 Asp His Ser Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
 100 105 110
 Lys

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<220>
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 tcc ctg aaa ctc tcc tgt gca gcc tca gga ttc gat ttt agt aga tac 96
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Asp Phe Ser Arg Tyr
 20 25 30
 tgg atg agt tgg gtc cgg cag gct cca ggg aaa ggg cta gaa tgg att 144
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
 35 40 45
 gga gaa att aat cca gat agc agt acg ata aac tat acg cca tct cta 192
 Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
 50 55 60
 aag gat aaa ttc atc atc tcc aga gac aac gcc aaa aat acg ctg tac 240
 Lys Asp Lys Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80

ctg	caa	atg	agc	aaa	gtg	aga	tct	gag	gac	aca	gcc	ctt	tat	tac	tgt	288
Leu	Gln	Met	Ser	Lys	Val	Arg	Ser	Glu	Asp	Thr	Ala	Leu	Tyr	Tyr	Cys	
				85				90						95		

gca	aga	ccg	gtt	gat	ggg	tac	tac	gat	gct	atg	gac	tac	tgg	ggg	caa	336
Ala	Arg	Pro	Val	Asp	Gly	Tyr	Tyr	Asp	Ala	Met	Asp	Tyr	Trp	Gly	Gln	
			100					105					110			

gga	acc	tca	gtc	acc	gtc	tcc	tca									360
Gly	Thr	Ser	Val	Thr	Val	Ser	Ser									
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<210> 4
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 <213> Mus musculus

<400> 4																
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		20						25					30			
Trp	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Ile	
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Gly	Glu	Ile	Asn	Pro	Asp	Ser	Ser	Thr	Ile	Asn	Tyr	Thr	Pro	Ser	Leu	
	50					55				60						
Lys	Asp	Lys	Phe	Ile	Ile	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Thr	Leu	Tyr	
65				70					75					80		
Leu	Gln	Met	Ser	Lys	Val	Arg	Ser	Glu	Asp	Thr	Ala	Leu	Tyr	Tyr	Cys	
			85					90						95		
Ala	Arg	Pro	Val	Asp	Gly	Tyr	Tyr	Asp	Ala	Met	Asp	Tyr	Trp	Gly	Gln	
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<400> 5																
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tcc	aac	aat	aag	aac	tac	tta	gct	tgg	tac	cag	cag	aaa	cca	gga	cag	144
cct	cct	aag	ctg	ctc	att	tac	tgg	gca	tct	acc	cgg	gaa	tcc	ggg	gtc	192
cct	gac	cga	ttc	agt	ggc	agc	ggg	tct	ggg	aca	gat	ttc	act	ctc	acc	240
atc	agc	agc	ctg	cag	gct	gaa	gat	gtg	gca	gtt	tat	tac	tgt	cag	caa	288
tat	tat	agt	act	cct	cc											305

<210> 6
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 <212> PRT

<213> Homo sapiens

<400> 6

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Asp	Ser	Leu	Ala	Val	Ser	Leu	Gly	
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Glu	Arg	Ala	Thr	Ile	Asn	Cys	Lys	Ser	Ser	Gln	Ser	Val	Leu	Tyr	Ser	
			20					25					30			
Ser	Asn	Asn	Lys	Asn	Tyr	Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	
		35					40					45				
Pro	Pro	Lys	Leu	Leu	Ile	Tyr	Trp	Ala	Ser	Thr	Arg	Glu	Ser	Gly	Val	
	50					55					60					
Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	
65					70					75				80		
Ile	Ser	Ser	Leu	Gln	Ala	Glu	Asp	Val	Ala	Val	Tyr	Tyr	Cys	Gln	Gln	
			85						90					95		
Asp	His	Ser	Tyr	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile	
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Lys

<210> 7

<211> 294

<212> DNA

<213> Homo sapiens

<400> 7

gag	gtg	cag	ctg	gtg	gag	tct	ggg	gga	ggc	ttg	gtc	cag	cct	ggg	ggg	48
tcc	ctg	aga	ctc	tcc	tgt	gca	gcc	tct	gga	ttc	acc	ttt	agt	agc	tat	96
tgg	atg	agc	tgg	gtc	cgc	cag	gct	cca	ggg	aag	ggg	ctg	gag	tgg	gtg	144
gcc	aac	ata	aag	caa	gat	gga	agt	gag	aaa	tac	tat	gtg	gac	tct	gtg	192
aag	ggc	cga	ttc	acc	atc	tcc	aga	gac	aac	gcc	aag	aac	tca	ctg	tat	240
ctg	caa	atg	aac	agc	ctg	aga	gcc	gag	gac	acg	gct	gtg	tat	tac	tgt	288
gcg	aga															294

<210> 8

<211> 120

<212> PRT

<213> Homo sapiens

<400> 8

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Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr	
			20					25					30			
Trp	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	
		35					40					45				
Ala	Asn	Ile	Lys	Gln	Asp	Gly	Ser	Glu	Lys	Tyr	Tyr	Val	Asp	Ser	Val	
	50					55					60					
Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Ser	Leu	Tyr	
65					70					75				80		
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
			85					90						95		
Ala	Arg	Pro	Asp	Tyr	Tyr	Tyr	Tyr	Tyr	Gly	Met	Asp	Val	Trp	Gly	Gln	
			100					105					110			

Gly Thr Thr Val Thr Val Ser Ser
 115 120

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 <212> DNA
 <213> Mus musculus

<220>
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 1 5 10 15
 gat caa gcc tcc atc tct tgc aga tct agt cag agc att gta cat agt 96
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
 20 25 30
 aat gga aac acc tat tta gaa tgg tac ctg cag aaa cca ggc cag tct 144
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 cca aag ctc ctg atc tac aaa gtt tcc aac cga ttt tct ggt gtc cca 192
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 gac agg ttc agt ggc agt gga tca ggg aca gat ttc aca ctc aag atc 240
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 agc aga gtg gag gct gag gat ctg gga gtt tat tac tgc ttt caa ggt 288
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
 85 90 95
 tca cat gtt ccg tgg acg ttc ggt gga ggc acc aag ctg gaa atc aaa 336
 Ser His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 10
 <211> 112
 <212> PRT
 <213> Mus musculus

<400> 10
 Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
 20 25 30
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser

35	40	45
Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro		
50	55	60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile		
65	70	75
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly		
85	90	95
Ser His Val Pro Trp Thr Phe Gly Gly Thr Lys Leu Glu Ile Lys		
100	105	110

<210> 11
 <211> 369
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (1)...(369)

<400> 11

cag gtt act ctg aaa gag act ggc cct ggg ata ttg cag ccc tcc cag	48
Gln Val Thr Leu Lys Glu Thr Gly Pro Gly Ile Leu Gln Pro Ser Gln	
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acc ctc agt ctg act tgt tct ttc tct ggg ttt tca ctg agc act tct	96
Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly Phe Ser Leu Ser Thr Ser	
20 25 30	
ggg atg ggt gta ggc tgg att cgt cag cct tca gga gag ggt cta gag	144
Gly Met Gly Val Gly Trp Ile Arg Gln Pro Ser Gly Glu Gly Leu Glu	
35 40 45	
tgg ctg gca gac att tgg tgg gat gac aat aag tac tat aac cca tcc	192
Trp Leu Ala Asp Ile Trp Trp Asp Asp Asn Lys Tyr Tyr Asn Pro Ser	
50 55 60	
ctg aag agc cgg ctc aca atc tcc aag gat acc tcc agc aac cag gta	240
Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Ser Asn Gln Val	
65 70 75 80	
ttc ctc aag atc acc agt gtg gac act gca gat act gcc act tac tac	288
Phe Leu Lys Ile Thr Ser Val Asp Thr Ala Asp Thr Ala Thr Tyr Tyr	
85 90 95	
tgt gct cga aga gct aac tat ggt aac ccc tac tat gct atg gac tac	336
Cys Ala Arg Arg Ala Asn Tyr Gly Asn Pro Tyr Tyr Ala Met Asp Tyr	
100 105 110	
tgg ggt caa gga acc tca gtc acc gtc tcc tca	369
Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser	
115 120	

<210> 12

<211> 123
 <212> PRT
 <213> Mus musculus

<400> 12
 Gln Val Thr Leu Lys Glu Thr Gly Pro Gly Ile Leu Gln Pro Ser Gln
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly Phe Ser Leu Ser Thr Ser
 20 25 30
 Gly Met Gly Val Gly Trp Ile Arg Gln Pro Ser Gly Glu Gly Leu Glu
 35 40 45
 Trp Leu Ala Asp Ile Trp Trp Asp Asp Asn Lys Tyr Tyr Asn Pro Ser
 50 55 60
 Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Ser Asn Gln Val
 65 70 75 80
 Phe Leu Lys Ile Thr Ser Val Asp Thr Ala Asp Thr Ala Thr Tyr Tyr
 85 90 95
 Cys Ala Arg Arg Ala Asn Tyr Gly Asn Pro Tyr Tyr Ala Met Asp Tyr
 100 105 110
 Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
 115 120

<210> 13
 <211> 305
 <212> DNA
 <213> Homo sapiens

<400> 13
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 gag ccg gcc tcc atc tcc tgc agg tct agt cag agc ctc ttg gat agt 96
 gat gat gga aac acc tat ttg gac tgg tac ctg cag aag cca ggg cag 144
 tct cca cag ctc ctg atc tat acg ctt tcc tat cgg gcc tct gga gtc 192
 cca gac agg ttc agt ggc agt ggg tca ggc act gat ttc aca ctg aaa 240
 atc agc agg gtg gag gct gag gat gtt gga gtt tat tac tgc atg caa 288
 cgt ata gag ttt cct tc 305

<210> 14
 <211> 111
 <212> PRT
 <213> Homo sapiens

<400> 14
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 Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Asp Gly Asn Thr Tyr Leu Asp Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Thr Leu Ser Tyr Arg Ala Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ser
 85 90 95

His Val Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105 110

<210> 15
 <211> 288
 <212> DNA
 <213> Homo sapiens

<400> 15
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 acctgcacct tctctgggtt ctcactcagc actagtggaa tgcgtgtgag ctggatccgt 120
 cagccccccag ggaaggccct ggagtggctt gcacgcattg attggg atg atg ata 175
 aat tct aca gca cat ctc tga agaccaggct caccatctcc aaggacacct 226
 ccaaaaacca ggtggtcctt acaatgacca acatggaccc tgtggacaca gccacgtatt 286
 ac 288

<210> 16
 <211> 123
 <212> PRT
 <213> Homo sapiens

<400> 16
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 1 5 10 15
 Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ser
 20 25 30
 Gly Met Arg Val Ser Trp Ile Arg Gln Pro Pro Gly Lys Ala Leu Glu
 35 40 45
 Trp Leu Ala Arg Ile Asp Trp Asp Asp Asp Lys Phe Tyr Ser Thr Ser
 50 55 60
 Leu Lys Thr Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val
 65 70 75 80
 Val Leu Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr
 85 90 95
 Cys Ala Arg Arg Ala Asn Tyr Tyr Tyr Tyr Tyr Ala Met Asp Val
 100 105 110
 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120

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 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(339)

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 1 5 10 15

gag ccg gcc tcc atc tcc tgc agg tct agt cag agc ctc ttg gat agt	96
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu Asp Ser	
20 25 30	
gat gat gga aac acc tat ttg gac tgg tac ctg cag aag cca ggg cag	144
Asp Asp Gly Asn Thr Tyr Leu Asp Trp Tyr Leu Gln Lys Pro Gly Gln	
35 40 45	
tct cca cag ctc ctg atc tat acg ctt tcc tat cgg gcc tct gga gtc	192
Ser Pro Gln Leu Leu Ile Tyr Thr Leu Ser Tyr Arg Ala Ser Gly Val	
50 55 60	
cca gac agg ttc agt ggc agt ggg tca ggc act gat ttc aca ctg aaa	240
Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys	
65 70 75 80	
atc agc agg gtg gag gct gag gat gtt gga gtt tat tac tgc atg caa	288
Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln	
85 90 95	
cgg ttc aca tgt tcc gtg gac gtt cgg cca agg gac caa ggt gga aat	336
Arg Phe Thr Cys Ser Val Asp Val Arg Pro Arg Asp Gln Gly Gly Asn	
100 105 110	
caa a	340
Gln	

<210> 18
 <211> 113
 <212> PRT
 <213> Homo sapiens

<400> 18
 Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr Pro Gly
 1 5 10 15
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 20 25 30
 Asp Asp Gly Asn Thr Tyr Leu Asp Trp Tyr Leu Gln Lys Pro Gly Gln
 35 40 45
 Ser Pro Gln Leu Leu Ile Tyr Thr Leu Ser Tyr Arg Ala Ser Gly Val
 50 55 60
 Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys
 65 70 75 80
 Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln
 85 90 95
 Arg Phe Thr Cys Ser Val Asp Val Arg Pro Arg Asp Gln Gly Gly Asn
 100 105 110
 Gln

<210> 19
 <211> 51

<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(51)

<400> 19
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Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15

gcc 51
Ala

<210> 20
<211> 17
<212> PRT
<213> Mus musculus

<400> 20
Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 21
<211> 21
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(21)

<400> 21
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Gly Ala Ser Thr Arg Glu Ser
1 5

<210> 22
<211> 7
<212> PRT
<213> Mus musculus

<400> 22
Gly Ala Ser Thr Arg Glu Ser
1 5

<210> 23

<211> 27
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(27)

<400> 23
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Gln Asn Asp His Ser Tyr Pro Tyr Thr
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27

<210> 24
<211> 9
<212> PRT
<213> Mus musculus

<400> 24
Gln Asn Asp His Ser Tyr Pro Tyr Thr
1 5

<210> 25
<211> 30
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(30)

<400> 25
gga ttc gat ttt agt aga tac tgg atg agt
Gly Phe Asp Phe Ser Arg Tyr Trp Met Ser
1 5 10

30

<210> 26
<211> 10
<212> PRT
<213> Mus musculus

<400> 26
Gly Phe Asp Phe Ser Arg Tyr Trp Met Ser
1 5 10

<210> 27
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<212> DNA
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<220>

<221> CDS
<222> (1)...(51)

<400> 27
gaa att aat cca gat agc agt acg ata aac tat acg cca tct cta aag 48
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1 5 10 15

gat 51
Asp

<210> 28
<211> 17
<212> PRT
<213> Mus musculus

<400> 28
Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu Lys
1 5 10 15
Asp

<210> 29
<211> 33
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(33)

<400> 29
ccg gtt gat ggt tac tac gat gct atg gac tac 33
Pro Val Asp Gly Tyr Tyr Asp Ala Met Asp Tyr
1 5 10

<210> 30
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<400> 30
Pro Val Asp Gly Tyr Tyr Asp Ala Met Asp Tyr
1 5 10

<210> 31
<211> 48
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(48)

<400> 31
aga tct agt cag agc att gta cat agt aat gga aac acc tat tta gaa 48
Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu
1 5 10 15

<210> 32
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<213> Mus musculus

<400> 32
Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu
1 5 10 15

<210> 33
<211> 21
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(21)

<400> 33
aaa gtt tcc aac cga ttt tct 21
Lys Val Ser Asn Arg Phe Ser
1 5

<210> 34
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<212> PRT
<213> Mus musculus

<400> 34
Lys Val Ser Asn Arg Phe Ser
1 5

<210> 35
<211> 27
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(27)

<400> 35
 ttt caa ggt tca cat gtt ccg tgg acg
 Phe Gln Gly Ser His Val Pro Trp Thr
 1 5

27

<210> 36
 <211> 9
 <212> PRT
 <213> Mus musculus

<400> 36
 Phe Gln Gly Ser His Val Pro Trp Thr
 1 5

<210> 37
 <211> 36
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (1)...(36)

<400> 37
 ggg ttt tca ctg agc act tct ggt atg ggt gta ggc
 Gly Phe Ser Leu Ser Thr Ser Gly Met Gly Val Gly
 1 5 10

36

<210> 38
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 <213> Mus musculus

<400> 38
 Gly Phe Ser Leu Ser Thr Ser Gly Met Gly Val Gly
 1 5 10

<210> 39
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 <213> Mus musculus

<220>
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 <222> (1)...(48)

<400> 39
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48

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<400> 40
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1 5 10 15

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<220>
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Gly Phe Asp Phe Ser Arg Tyr Trp Met Gly
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<210> 49
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<400> 49
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<210> 50
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<210> 51
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<400> 51
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<210> 52
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<220>

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<400> 52

Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro His Leu Lys
1 5 10 15

Asp

<210> 53

<211> 17

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<400> 53

Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Gly Leu Lys
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Asp

<210> 54

<211> 17

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<400> 54

Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu Gln
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Asp

<210> 55

<211> 17

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<400> 55

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<400> 56
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<210> 57
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1 5 10

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<400> 66
Lys Ser Ser Ser Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 67
<211> 17
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<400> 67
Lys Ser Ser Gln Ser Leu Leu Ser Ser Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 68

<211> 17
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<400> 68
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1 5 10 15
Ala

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<400> 69
Lys Ser Ser Gln Ser Leu Leu Asn Trp Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

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<400> 70
Lys Ser Ser Gln Ser Leu Leu Asn His Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

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<400> 71
Lys Ser Ser Gln Ser Leu Leu Asn Arg Gly Asn Gln Lys Asn Tyr Leu
1 5 10 15

Ala

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<400> 72
Lys Ser Ser Gln Ser Leu Leu Asn Ser Tyr Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

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<400> 73
Lys Ser Ser Gln Ser Leu Leu Asn Ser Arg Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 74
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<400> 74
Lys Ser Ser Gln Ser Leu Leu Asn Ser His Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 75
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<400> 75

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Ile	Asn	Gln	Lys	Asn	Tyr	Leu
1				5					10					15	

Ala

<210> 76

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<400> 76

Lys	Ser	Ser	Gln	Ser	Leu	Leu	Asn	Ser	Gly	Asn	Lys	Lys	Asn	Tyr	Leu
1				5					10					15	

Ala

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<400> 77

Gln	Asn	Asp	His	Gln	Tyr	Pro	Tyr	Thr
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<210> 78

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<400> 78

Gln	Asn	Asp	His	Gly	Tyr	Pro	Tyr	Thr
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<210> 79

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<400> 79
Gln Asn Asp His Leu Tyr Pro Tyr Thr
1 5

<210> 80
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Gln Asn Asp His Ala Tyr Pro Tyr Thr
1 5

<210> 81
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1 5

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<400> 82
Gln Asn Asp His Val Tyr Pro Tyr Thr
1 5

<210> 83
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<400> 83
Gln Asn Asp His Ser Asn Pro Tyr Thr
1 5

<210> 84
<211> 9
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<400> 84
Gln Asn Asp His Ser Ser Pro Tyr Thr
1 5

<210> 85
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<400> 85
Gln Asn Asp His Ser Pro Pro Tyr Thr
1 5

<210> 86
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<400> 86
Gln Asn Asp His Ser Met Pro Tyr Thr
1 5

<210> 87
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1 5 10

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<400> 90
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1 5 10

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<400> 91
Gly Phe Ser Leu Ser Thr Ser Gly Met Gly Val Ala
1 5 10

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<400> 92
Asp Ile Trp Trp Asp Asp Asn Lys Tyr Ser Asn Pro Ser Leu Lys Ser
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1 5 10

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<400> 103
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1 5 10

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1 5 10

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1 5 10

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Arg Ala Asn Tyr Gly Asn Pro Tyr Tyr Ala Met Asp Met
1 5 10

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<400> 110
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<400> 111
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Ser Val Ser Asn Arg Phe Ser
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Lys Ala Ser Asn Arg Phe Ser
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Lys Val Ser Ser Arg Phe Ser
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Phe Gln Gly Ser His Phe Pro Trp Thr
1 5

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Arg Ser Ser Gln Ser Ile Val Ser Ser Gln Gly Asn Thr Tyr Leu
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<400> 154

Glu Ile Asn Pro Asp Ser Ser Thr Ala Asn Tyr Thr Pro Ala Leu Lys
1 5 10 15
Asp

<210> 155

<211> 17

<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 155
Glu Ile Asn Pro Asp Ser Ser Thr Ala Asn Tyr Thr Pro Tyr Leu Lys
1 5 10 15
Asp

<210> 156
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 156
Glu Ile Asn Pro Asp Ser Ser Thr Ala Asn Tyr Thr Pro His Leu Lys
1 5 10 15
Asp

<210> 157
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 157
Lys Ser Ser Gln Ser Leu Leu Asn Trp Tyr Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 158
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 158
Lys Ser Ser Gln Ser Leu Leu Asn Tyr Tyr Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 159
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 159
Lys Ser Ser Gln Ser Leu Leu Asn Tyr His Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 160
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 160
Lys Ser Ser Gln Ser Leu Leu Asn Arg Tyr Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 161
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 161
Lys Ser Ser Gln Ser Leu Leu Asn Trp His Asn Gln Lys Asn Tyr Leu
1 5 10 15
Ala

<210> 162
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic antibody mutation

<400> 162
Glu Ile Asn Pro Asp Ser Ser Thr Val Asn Tyr Thr Pro Ser Leu Lys

<220>

<223> Primer

<400> 167

tctctggaga tggatgaaty atcctttagg trtggcgat agttggccgt actgctatct 60
ggatt 65

<210> 168

<211> 46

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 168

ctaagtagtt cttttggttg trgtrgytta acagactctg gctgga 45

<210> 169

<211> 46

<212> DNA

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<220>

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<400> 169

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<210> 170

<211> 46

<212> DNA

<213> Artificial Sequence

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<210> 171

<211> 46

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<400> 172

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46

<210> 173

<211> 46

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45

<210> 174

<211> 40

<212> DNA

<213> Artificial Sequence

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<223> Primer

<400> 174

cttctgcagg taccattcgt tataacaatgc tctgactaga

40

<210> 175

<211> 57

<212> DNA

<213> Artificial Sequence

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<400> 175

tgggggctga cggatccacm acacacccat tccacragtg ctgagtgaga acccaga

57

<210> 176

<211> 57

<212> DNA

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<400> 176

tgggggctga cggatccags ccacacccat tccacractg ctgagtgaga acccaga

57

<210> 177

<211> 40

<212> DNA

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40

<210> 178

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 178

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<210> 179

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

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<210> 180

<211> 60

<212> DNA

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<210> 181

<211> 60

<212> DNA

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<211> 60
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<220>
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<400> 184
ttggtgctga tgttctgg 18

<210> 185
<211> 18
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<220>
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<400> 185
atcttcttgc tgttctgg 18

<210> 186
<211> 18
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<220>
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<400> 186

tggtgctgc tgctctgg 18

<210> 187

<211> 18

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<400> 187

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<210> 188

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 188

ggaatcttgt tgctctgg 18

<210> 189

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 189

rtrttsctgc tgctrctgg 18

<210> 190

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 190

ggtctcctgt tgctctgt 18

<210> 191

<211> 18

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<223> Primer

<400> 191

atatttctac tgctctgt 18

<210> 192

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 192

gtcataatrt ccagagga 18

<210> 193

<211> 17

<212> DNA

<213> Artificial Sequence

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<223> Primer

<400> 193

ctgagctgtg tattcct 17

<210> 194

<211> 17

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<223> Primer

<400> 194

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<400> 195

tggrtcattst tcttcct 17

<210> 196

<211> 17

<212> DNA

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<223> Primer

<400> 196

tksrctctttc tcttcct 17

<210> 197

<211> 17

<212> DNA

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<400> 197

tgtatcatsc tcttctt 17

<210> 198

<211> 17

<212> DNA

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<223> Primer

<400> 198

tggrtctttc tcttttt 17

<210> 199

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 199

ttaaacttgg gtttttct 18

<210> 200

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 200

gkgctgytcy tctgcct 17

<210> 201

<211> 18

<212> DNA

<213> Artificial Sequence

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<400> 201

ttaagtcttc tgtacctg 18

<210> 202

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<223> Primer

<400> 202

tcagtaactg caggtgtcca 20

<210> 203

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 203

ttttaaaagg tgtccagtgt 20

<210> 204

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 204

gcaacagcta caggtgtcca 20

<210> 205

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 205

cagctacagr tgtccactcc 20

<210> 206

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 206

atttccaagc tgtgtcctgt cc 22

<210> 207

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 207

ctcctgtcag gaactgcagg tgt 23

<210> 208

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 208

cagtggttac aggggtcaat tca 23

<210> 209

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 209

ctgttsacag chttckgg t 21

<210> 210

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 210

ctgatggcag ctgcccagg t 21

<210> 211

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 211

tttatcaagg tgtgcattgt 20

<210> 212

<211> 27

<212> DNA

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<223> Primer

<400> 212

tcactggatg gtggaagat ggataca 27

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<211> 24

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<400> 213

gacatttggg aaggactgac tctc 24

<210> 214

<211> 24

<212> DNA

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<400> 214

cagggggctc tcgcaggaga cgag 24

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<212> DNA

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<400> 215

atcttcttgc tgttctgggt atctggaacc tgtggg 36

<210> 216

<211> 36

<212> DNA

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ttggtgctga tggtctggat tcctgcttc agcagt 36

<210> 217

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 217

gtggacgttc ggccaaggga ccaaggtgga aatcaaac 38

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<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 218

tgtacacttt tggccagggg accaagctgg agatcaaac 39

<210> 219

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<212> DNA

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<223> Primer

<400> 219

attactacta ctactacgt atggacgtct ggggccaagg gaccacggtc accgtctcct 60
cag 63

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ttactcgctg cccaaccagc catggcc 27

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<223> primer

<400> 221
 gacagatggt gcagccacag t 21

<210> 222
 <211> 27
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<220>
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<400> 222
 ttactgttta cccctgtgac aaaagcc 27

<210> 223
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<220>
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<400> 223
 gaagaccgat gggcccttgg t 21

<210> 224
 <211> 66
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 <213> Artificial Sequence

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<221> misc_feature
 <222> 44, 45
 <223> n = A,T,C or G

<400> 224
 cttggtcccc tggccaaaag tgtacggata actatgatca ttmnacagt aataaactgc 60
 cacatc 66

<210> 225
 <211> 66
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<221> misc_feature
 <222> 41, 42
 <223> n = A,T,C or G

<400> 225
 cttggtcccc tggccaaaag tgtacggata actatgatcm nmctgacagt aataaactgc 60

cacatc

66

<210> 226

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 38, 39

<223> n = A,T,C or G

<400> 226

cttggtcccc tggccaaaag tgtacggata actatgmna ttctgacagt aataaactgc 60
cacatc 66

<210> 227

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 35, 36

<223> n = A,T,C or G

<400> 227

cttggtcccc tggccaaaag tgtacggata actmnnatca ttctgacagt aataaactgc 60
cacatc 66

<210> 228

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 32, 33

<223> n = A,T,C or G

<400> 228

cttggtcccc tggccaaaag tgtacggata mnnatgatca ttctgacagt aataaactgc 60
cacatc 66

<210> 229

<211> 66

<212> DNA

<213> Artificial Sequence

<220>
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<221> misc_feature
 <222> 29, 30
 <223> n = A,T,C or G

<400> 229
 cttggtcccc tggccaaaag tgtacggmn actatgatca ttctgacagt aataaactgc 60
 cacatc 66

<210> 230
 <211> 66
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<221> misc_feature
 <222> 26, 27
 <223> n = A,T,C or G

<400> 230
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 cacatc 66

<210> 231
 <211> 66
 <212> DNA
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<220>
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<221> misc_feature
 <222> 23, 24
 <223> n = A,T,C or G

<400> 231
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 cacatc 66

<210> 232
 <211> 66
 <212> DNA
 <213> Artificial Sequence

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<221> misc_feature
 <222> 20, 21
 <223> n = A,T,C or G

<400> 232
cttggtcccc tggccaaamn ngtagcgata actatgatca ttctgacagt aataaactgc 60
cacatc 66

<210> 233
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 50, 51
<223> n = A,T,C or G

<400> 233
cgtggttcct tgccccagc agtccatagc atcgtagtaa ccatcaacmn ntctcgaca 60
gtaatacac 69

<210> 234
<211> 69
<212> DNA
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<220>
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<221> misc_feature
<222> 47, 48
<223> n = A,T,C or G

<400> 234
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gtaatacac 69

<210> 235
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
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<221> misc_feature
<222> 44, 45
<223> n = A,T,C or G

<400> 235
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gtaatacac 69

<210> 236
<211> 69
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<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 41, 42

<223> n = A,T,C or G

<400> 236

cgtgggttcct tgccccccagt agtccatagc atcgtagtam nnatcaaccg gtctcgca 60
gtaatacac 69

<210> 237

<211> 69

<212> DNA

<213> Artificial Sequence

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<221> misc_feature

<222> 38, 39

<223> n = A,T,C or G

<400> 237

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gtaatacac 69

<210> 238

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 35, 36

<223> n = A,T,C or G

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gtaatacac 69

<210> 239

<211> 69

<212> DNA

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<221> misc_feature

<222> 32, 33

<223> n = A,T,C or G

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gtaatacac 69

<210> 241

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

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<221> misc_feature

<222> 26, 27

<223> n = A,T,C or G

<400> 241

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gtaatacac 69

<210> 242

<211> 69

<212> DNA

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<221> misc_feature

<222> 23, 24

<223> n = A,T,C or G

<400> 242

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gtaatacac 69

<210> 243

<211> 69
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<221> misc_feature
<222> 20, 21
<223> n = A,T,C or G

<400> 243
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gtaatacac 69

<210> 244
<211> 66
<212> DNA
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<221> misc_feature
<222> 44, 45
<223> n = A,T,C or G

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aacatc 66

<210> 245
<211> 66
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<221> misc_feature
<222> 41, 42
<223> n = A,T,C or G

<400> 245
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aacatc 66

<210> 246
<211> 66
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<221> misc_feature
<222> 38, 39
<223> n = A,T,C or G

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aacatc 66

<210> 247
<211> 66
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<221> misc_feature
<222> 35, 36
<223> n = A,T,C or G

<400> 247
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aacatc 66

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<221> misc_feature
<222> 32, 33
<223> n = A,T,C or G

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aacatc 66

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<221> misc_feature
<222> 29, 30
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<400> 249
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aacatc 66

<210> 250
<211> 66
<212> DNA
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<221> misc_feature
<222> 26, 27
<223> n = A,T,C or G

<400> 250
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aacatc 66

<210> 251
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 23, 24
<223> n = A,T,C or G

<400> 251
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aacatc 66

<210> 252
<211> 66
<212> DNA
<213> Artificial Sequence

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<221> misc_feature
<222> 20, 21
<223> n = A,T,C or G

<400> 252
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aacatc 66

<210> 253
<211> 75
<212> DNA
<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 56, 57

<223> n = A,T,C or G

<400> 253

cgtgggttcct tgccccccagt agtccatagc atagtagggg ttaccatagt tagcmnntcg 60
agcacagtaa tacgt 75

<210> 254

<211> 75

<212> DNA

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<220>

<223> primer

<221> misc_feature

<222> 53, 54

<223> n = A,T,C or G

<400> 254

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agcacagtaa tacgt 75

<210> 255

<211> 75

<212> DNA

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<220>

<223> primer

<221> misc_feature

<222> 50, 51

<223> n = A,T,C or G

<400> 255

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agcacagtaa tacgt 75

<210> 256

<211> 75

<212> DNA

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<221> misc_feature

<222> 47, 48

<223> n = A,T,C or G

<400> 256

cgtgggttcct tgccccccagt agtccatagc atagtagggg ttacccmngt tagctcttcg 60
agcacagtaa tacgt 75

<210> 257

<211> 75

<212> DNA

<213> Artificial Sequence

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<223> primer

<221> misc_feature

<222> 44, 45

<223> n = A,T,C or G

<400> 257

cgtgggttcct tgccccccagt agtccatagc atagtagggg ttmnnatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 258

<211> 75

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 41, 42

<223> n = A,T,C or G

<400> 258

cgtgggttcct tgccccccagt agtccatagc atagtagggm nnaccatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 259

<211> 75

<212> DNA

<213> Artificial Sequence

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<223> primer

<221> misc_feature

<222> 38, 39

<223> n = A,T,C or G

<400> 259

cgtgggttcct tgccccccagt agtccatagc atagtamng ttaccatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 260

<211> 75

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 35, 36

<223> n = A,T,C or G

<400> 260

cgtgggttcct tgccccccagt agtccatagc atamnnngggg ttaccatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 261

<211> 75

<212> DNA

<213> Artificial Sequence

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<223> primer

<221> misc_feature

<222> 32, 33

<223> n = A,T,C or G

<400> 261

cgtgggttcct tgccccccagt agtccatagc mnnngtagggg ttaccatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 262

<211> 75

<212> DNA

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<222> 29, 30

<223> n = A,T,C or G

<400> 262

cgtgggttcct tgccccccagt agtccatmnn atagtagggg ttaccatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 263

<211> 75

<212> DNA

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<221> misc_feature

<222> 26, 27

<223> n = A,T,C or G

<400> 263
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agcacagtaa tacgt 75

<210> 264
<211> 75
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<221> misc_feature
<222> 23, 24
<223> n = A,T,C or G

<400> 264
cgtgggttcct tgccccccagt amnncatagc atagtagggg ttaccatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 265
<211> 75
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<221> misc_feature
<222> 20, 21
<223> n = A,T,C or G

<400> 265
cgtgggttcct tgcccccamn ngtcctatagc atagtagggg ttaccatagt tagctcttcg 60
agcacagtaa tacgt 75

<210> 266
<211> 60
<212> DNA
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<220>
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<221> misc_feature
<222> 41, 42
<223> n = A,T,C or G

<400> 266
gttcttttgg tttccgcwgt ttaacagact ctggctggam nngcagttga tggtaggcct 60

<210> 267
<211> 60

<212> DNA
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<221> misc_feature
<222> 38, 39
<223> n = A,T,C or G

<400> 267
gttcttttgg tttccgcwgt ttaacagact ctggctmnnn ttgcagttga tggtaggcct 60

<210> 268
<211> 60
<212> DNA
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<220>
<223> primer

<221> misc_feature
<222> 35, 36
<223> n = A,T,C or G

<400> 268
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<210> 269
<211> 60
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<221> misc_feature
<222> 32, 33
<223> n = A,T,C or G

<400> 269
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<210> 270
<211> 60
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<221> misc_feature

<222> 29, 30
<223> n = A,T,C or G

<400> 270
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<210> 271
<211> 60
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<220>
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<221> misc_feature
<222> 26, 27
<223> n = A,T,C or G

<400> 271
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<210> 272
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 23, 24
<223> n = A,T,C or G

<400> 272
gttcttttgg tttccgcwgt tmncagact ctggctggac ttgcagttga tggtaggcct 60

<210> 273
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 20, 21
<223> n = A,T,C or G

<400> 273
gttcttttgg tttccgcwmn ntaacagact ctggctggac ttgcagttga tggtaggcct 60

<210> 274
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 44, 45
<223> n = A,T,C or G

<400> 274
tggtttctgc tggtagcaag ctaagtagtt cttttgggtt ccmnngttta acagactctg 60
gct 63

<210> 275
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 41, 42
<223> n = A,T,C or G

<400> 275
tggtttctgc tggtagcaag ctaagtagtt cttttgggtt nngcwgttta acagactctg 60
gct 63

<210> 276
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 38, 39
<223> n = A,T,C or G

<400> 276
tggtttctgc tggtagcaag ctaagtagtt cttttgmntt ccgcwgttta acagactctg 60
gct 63

<210> 277
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
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<221> misc_feature
<222> 35, 36
<223> n = A,T,C or G

<400> 277
tggtttctgc tggtagcaag ctaagtagtt cttmnnngttt ccgcwgttta acagactctg 60
gct 63

<210> 278
<211> 63
<212> DNA
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<221> misc_feature
<222> 32, 33
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<400> 278
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gct 63

<210> 279
<211> 63
<212> DNA
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<221> misc_feature
<222> 29, 30
<223> n = A,T,C or G

<400> 279
tggtttctgc tggtagcaag ctaagtammn cttttgggttt ccgcwgttta acagactctg 60
gct 63

<210> 280
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 26, 27
<223> n = A,T,C or G

<400> 280
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gct

63

<210> 281
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<220>
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<221> misc_feature
<222> 23, 24
<223> n = A,T,C or G

<400> 281
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gct 63

<210> 282
<211> 63
<212> DNA
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<220>
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<221> misc_feature
<222> 20, 21
<223> n = A,T,C or G

<400> 282
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gct 63

<210> 283
<211> 57
<212> DNA
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<221> misc_feature
<222> 38, 39
<223> n = A,T,C or G

<400> 283
gaatcgggtca gggacccccgg attccctggt agatgcmnng taaatgagca gcttagg 57

<210> 284
<211> 57
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<221> misc_feature

<222> 35, 36

<223> n = A,T,C or G

<400> 284

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<210> 285

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 32, 33

<223> n = A,T,C or G

<400> 285

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<210> 286

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 29, 30

<223> n = A,T,C or G

<400> 286

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<210> 287

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 26, 27

<223> n = A,T,C or G

<400> 287

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<210> 288

<211> 57
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<220>
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<221> misc_feature
<222> 23, 24
<223> n = A,T,C or G

<400> 288
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<210> 289
<211> 57
<212> DNA
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<220>
<223> primer

<221> misc_feature
<222> 20, 21
<223> n = A,T,C or G

<400> 289
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<210> 290
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
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<221> misc_feature
<222> 32, 33
<223> n = A,T,C or G

<400> 290
tggagcctgg cggacccagc tcaccaata mnactaaag gtgaatccag a 51

<210> 291
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 29, 30
<223> n = A,T,C or G

<400> 291
tggagcctgg cggacccagc tcatccamnn tctactaaag gtgaatccag a 51

<210> 292
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 26, 27
<223> n = A,T,C or G

<400> 292
tggagcctgg cggacccagc tcatmnnata tctactaaag gtgaatccag a 51

<210> 293
<211> 51
<212> DNA
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<220>
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<221> misc_feature
<222> 23, 24
<223> n = A,T,C or G

<400> 293
tggagcctgg cggacccagc tmnnccaata tctactaaag gtgaatccag a 51

<210> 294
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 20, 21
<223> n = A,T,C or G

<400> 294
tggagcctgg cggacccamnn ncatccaata tctactaaag gtgaatccag a 51

<210> 295
<211> 67
<212> DNA
<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 44, 45

<223> n = A,T,C or G

<400> 295

tagagatggc gtatagttta tcgtactgct atctggattt atmnnngccaa yccactccag 60
ccctttc 67

<210> 296

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 41, 42

<223> n = A,T,C or G

<400> 296

tagagatggc gtatagttta tcgtactgct atctggattm nnttcgccaa yccactccag 60
ccctttc 67

<210> 297

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 38, 39

<223> n = A,T,C or G

<400> 297

tagagatggc gtatagttta tcgtactgct atctggmnnt atttcgccaa yccactccag 60
ccctttc 67

<210> 298

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> 35, 36

<223> n = A,T,C or G

<400> 298

tagagatggc gtatagttta tcgtactgct atcmnnattt atttcgccaa yccactccag 60
ccctttc 67

<210> 299
<211> 67
<212> DNA
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<220>
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<221> misc_feature
<222> 32, 33
<223> n = A,T,C or G

<400> 299
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ccctttc 67

<210> 300
<211> 67
<212> DNA
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<221> misc_feature
<222> 29, 30
<223> n = A,T,C or G

<400> 300
tagagatggc gtatagttta tcgtactmnn atctggattt atttcgccaa yccactccag 60
ccctttc 67

<210> 301
<211> 67
<212> DNA
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<221> misc_feature
<222> 26, 27
<223> n = A,T,C or G

<400> 301
tagagatggc gtatagttta tcgtmnnngct atctggattt atttcgccaa yccactccag 60
ccctttc 67

<210> 302
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
 <223> primer

<221> misc_feature
 <222> 23, 24
 <223> n = A,T,C or G

<400> 302
 tagagatggc gtatagttta tmnactgct atctggattt atttcgccaa yccactccag 60
 ccctttc 67

<210> 303
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>
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<221> misc_feature
 <222> 20, 21
 <223> n = A,T,C or G

<400> 303
 tagagatggc gtatagttmn ncgtactgct atctggattt atttcgccaa yccactccag 60
 ccctttc 67

<210> 304
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>
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<221> misc_feature
 <222> 48, 49
 <223> n = A,T,C or G

<400> 304
 cgttgtctct ggagatgrtg aatytatcct ttagagatgg cgtatamnnt atcgtactgc 60
 tatctgg 67

<210> 305
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>
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<221> misc_feature
 <222> 45, 46
 <223> n = A,T,C or G

<400> 305
cgttgtctct ggagatgrtg aatytatcct ttagagatgg cgtmnnngttt atcgactgc 60
tatctgg 67

<210> 306
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 42, 43
<223> n = A,T,C or G

<400> 306
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tatctgg 67

<210> 307
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 39, 40
<223> n = A,T,C or G

<400> 307
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tatctgg 67

<210> 308
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 36, 37
<223> n = A,T,C or G

<400> 308
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tatctgg 67

<210> 309
<211> 67

<212> DNA
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<221> misc_feature
<222> 33, 34
<223> n = A,T,C or G

<400> 309
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tatctgg 67

<210> 310
<211> 67
<212> DNA
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<221> misc_feature
<222> 30, 31
<223> n = A,T,C or G

<400> 310
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tatctgg 67

<210> 311
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> 27, 28
<223> n = A,T,C or G

<400> 311
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tatctgg 67

<210> 312
<211> 58
<212> DNA
<213> Artificial Sequence

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<221> misc_feature

<222> 41, 42
<223> n = A,T,C or G

<400> 312
ataggtgttt ccattactat gtacaatgct ctgactagam nngcaggaga tggaggcc 58

<210> 313
<211> 58
<212> DNA
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<220>
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<221> misc_feature
<222> 38, 39
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<400> 313
ataggtgttt ccattactat gtacaatgct ctgactmnn cctgcaggaga tggaggcc 58

<210> 314
<211> 58
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<221> misc_feature
<222> 35, 36
<223> n = A,T,C or G

<400> 314
ataggtgttt ccattactat gtacaatgct ctgmnnagac ctgcaggaga tggaggcc 58

<210> 315
<211> 58
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<222> 32, 33
<223> n = A,T,C or G

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 <223> n = A,T,C or G

<400> 316
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<210> 317
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<221> misc_feature
 <222> 26, 27
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<400> 317
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<210> 318
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<221> misc_feature
 <222> 23, 24
 <223> n = A,T,C or G

<400> 318
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<210> 319
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<221> misc_feature
 <222> 20, 21
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<400> 319
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<210> 320
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<221> misc_feature
<222> 41, 42
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<400> 320
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<210> 321
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<221> misc_feature
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<400> 321
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<210> 322
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<221> misc_feature
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<223> n = A,T,C or G

<400> 322
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<210> 323
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<221> misc_feature

<222> 32, 33

<223> n = A,T,C or G

<400> 323

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<210> 324

<211> 60

<212> DNA

<213> Artificial Sequence

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<221> misc_feature

<222> 29, 30

<223> n = A,T,C or G

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<210> 325

<211> 60

<212> DNA

<213> Artificial Sequence

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<223> primer

<221> misc_feature

<222> 26, 27

<223> n = A,T,C or G

<400> 325

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<210> 326

<211> 60

<212> DNA

<213> Artificial Sequence

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<223> primer

<221> misc_feature

<222> 23, 24

<223> n = A,T,C or G

<400> 326

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<210> 327
<211> 60
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<220>
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<221> misc_feature
<222> 20, 21
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<400> 327
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<210> 328
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<220>
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<221> misc_feature
<222> 38, 39
<223> n = A,T,C or G

<400> 328
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<210> 329
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<221> misc_feature
<222> 35, 36
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<222> 32, 33

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<212> DNA

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<400> 333

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<221> misc_feature
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<210> 351
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<220>
<223> synthetic antibody mutation

Phe Gln Ser Ser His Phe Pro Trp Thr

5

[illegible]